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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/615,088

Applicant(s)

YEOH ET AL.

Examiner

DAVID P. RASHID

Art Unit

2624

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 24-33 and 37 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 24-33 and 37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

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List of Prior Art

U.S. Pub. No. 2002/0126299 (published Sep. 12, 2002) (“Buchar”).

U.S. Patent No. 6,356,672 (issued Mar. 12, 2002) (“Feng”).

Amendments & Claim Status

[1] This office action is responsive to Response to Non-Final Office Action (“Amendment”) received on Sep. 14, 2009. Claims 24-33 and 37 remain pending; claims 34-36 withdrawn.

Response to Arguments

Remarks Unpersuasive regarding Rejections Under 35 U.S.C. § 103

[2] Amendment 7-11 regarding rejected Claims 24-33 and 37 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pub. No. 2002/0126299 (“Buchar”) in view of U.S. Pat. No. 6,356,672 (“Feng”) have been respectfully and fully considered, but are not found persuasive.

For example, the cited portions of Feng make no mention or suggestion of "determin[ing] a scanned image alignment registration parameter for aligning a scanned image to the backing surface based on the average chrominance value and the chrominance deviation of the registration channel."

The Office Action, though, asserts that Feng teaches chrominance values. [See Office Action, pg. 6]. Even so, Feng teaches using chrominance values for an entirely different purpose than claimed.

For example. . .

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Thus, Applicant submits that the Office Action fails to demonstrate that the claimed invention is merely a "predictable use of prior art elements *according to their established functions*." KSR, 82 USPQ2d at 1396 (emphasis). More particularly, neither the cited portions of Buchar nor Feng teach or otherwise render obvious "determin[ing] a scanned image alignment registration parameter for aligning a scanned image to the backing surface based on the average chrominance value and the chrominance deviation of the registration channel."

Amendment at 9-10 (emphasis in original)..

However, the Claim 24 and 28 amendment "for aligning a scanned image to the backing surface is considered new matter. See § 112, first paragraph, rejection below for a detailed explanation. In view of the § 112, first paragraph, the question of whether Feng makes no mention or suggestion is irrelevant, and the question of whether to determine a predictable use of Buchar or Feng elements according to their established functions is inapplicable until the rejection is resolved.

By contrast, according to one aspect of Applicant's invention, the chrominance information may be used to compare against the background surface color. This may be useful, for example, in a CVT reproduction system with a readily detachable scanner backing ski that allows a user to select an appropriate backing for a given application, and may be particular useful when there is insufficient luminance variation between the input document *and* the color of the ski in any available channels. [See, e.g., Applicant's Specification, ¶ 8]. The chrominance information in Applicant's claimed invention is not merely being used for aligning pixels within a final image.

Amendment at 10-12 (emphasis in original).

However, Applicant's Specification at ¶ 0008 refers to the inappropriateness of accurate document registration enablement (or dynamic registration based on grayscale contribution) when there does not exist sufficient luminance variation between the document and the color of the ski. This is to address prior art applications when the solutions based on the systems/methods provided before ¶ 0008 are not appropriate.

Applicant's Specification at ¶ 0008 does not refer to Applicant's invention to be considered an aspect of it, nor does it support a cause (i.e., advantage, inherency, or theory under M.P.E.P. § 2163.07) for aligning a scanned image to a backing surface (based on an average chrominance value and a chrominance deviation of a registration channel) as rejected under § 112, first paragraph for new matter.

Claim Rejections - 35 U.S.C. § 112

[3] The following is a quotation of the first paragraph of 35 U.S.C. § 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

New Matter

If new subject matter is added to the disclosure, whether it be in the abstract, the specification, or the drawings, the examiner should object to the introduction of new matter under 35 U.S.C. § 132 or 251 as appropriate, and require applicant to cancel the new matter. If new matter is added to the claims, the examiner should reject the claims under 35 U.S.C. § 112, first paragraph - written description requirement. *In re Rasmussen*, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981).

M.P.E.P. § 2163.06(I).

Claims 24-33 and 37 are rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The original disclosure does not support “determine[ing] a scanned image alignment registration parameter for aligning a scanned image to the backing surface based on the average chrominance value and the chrominance deviation of the registration channel”. Claim 24 (emphasis added). Claim 28 by analogy.

“[F]or aligning a scanned image to the backing surface” is a functional limitation that is given patentable weight. See M.P.E.P. § 2173.05(e) (citing that “[a] functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used”).

The only mention of any “alignment” is with respect to “dual head scanners to ensure that the front and backside of a scanned page is perfectly aligned”. U.S. Pub. No. 2004/0114147 (Applicant’s publication) at ¶ 0004. However, this alignment pertains to the front and backside of a scanned page when a prior art scanner uses an edge detection operation. Id. This alignment

is in no concern to the registration parameter based on the average chrominance value and the chrominance deviation of the registration channel from Claim 24.

In addition, Applicant's invention determines a registration parameter "for document detection", "for edge detection in document scanning", "detect[[ed]] edges and accurately register documents", and "for a selected backing surface". *Id.* at ¶¶ 0036, 0048, 0050, 0057, respectively. The registration parameters "can be loaded into the appropriate registers in the document edge detection operation for use when a document is scanned[. T]he appropriate channel would be used for image registration and edged detection processing using the set parameters stored loaded in the registers." *Id.* at ¶ 0036.

However, though the determining of registration parameters are for a selected backing surface, the Examiner cannot correlate for aligning a scanned image to the backing surface as amended in Claim 24.

It is suggested to either (i) remove the functional limitation, (ii) indicate to the Examiner where in the original specification the functional limitation is positively supported, or (iii) establish inherency. *See* M.P.E.P. § 2133.07(a) (citing that " '[t]o establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted)."). *See also* M.P.E.P. § 2163.06(I) (citing that "[w]hen an amendment is filed in reply to an objection or rejection based on 35 U.S.C. 112, first paragraph, a study of the entire application is often necessary to determine whether or not 'new matter' is involved. Applicant should therefore specifically point out the support for any amendments made to the disclosure").

Claim Rejections - 35 U.S.C. § 103

[4] The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at

the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Buchar in view of Feng

[5] **Claims 24-33 and 37** are rejected under 35 U.S.C. § 103(a) as being unpatentable over Buchar in view of Feng.

Regarding **Claim 24**, while Buchar discloses in a document handler and imaging system (“improved document handler and imaging system” at ¶ 0012), wherein different document sheets are sequentially moved past an imaging station by a document feeding system to be illuminated by a document illumination source and imaged by a document imager in the document imaging station (“wherein different document sheets. . .document imaging station” at ¶ 0012),

wherein the document imaging station includes a document backing surface having a selected color and a scanning sensor having at least two color sensitive channels and wherein at least one edge of a document sheet is detected in said document imaging station by said document imager (“wherein the document imaging station. . .by said document imager” at ¶ 0012), comprising:

a registration parameter detection circuit (“registration parameter detection circuit; the registration parameter detection circuit receiving a set of gray level values for the backing surface” at ¶ 0012), configured to:

receive image data including gray level values in multiple channels for selected pixel locations along a scanline (“the two sets of gray level values including a first set of gray level values comprising a gray level value for selected pixel locations along a scanline” at para.0013);

automatically determine an average gray level value for each of the multiple channels (“automatically determining an average gray level of the backing surface for each of the at least two sensitive channels” at ¶ 0012);

select a registration channel from the multiple channels based on the average gray level value (“selecting a registration channel based on the average gray level for each of the at least two sensitive channels” at ¶ 0012);

determine a gray level deviation for the registration channel (“the registration parameter detection circuit automatically selecting a registration channel based on the average gray level for each of the at least two sensitive channels and determining a gray level deviation for the registration channel” at ¶ 0012); and

determine a scanned image alignment registration parameter [for aligning a scanned image to the backing surface]¹ based on the average gray level value and the gray level deviation of the registration channel (“the registration parameter detection circuit automatically determining registration parameters based on the average gray level and the gray level deviation of the registration channel. . .” at ¶ 0012), Buchar does not disclose the image registration parameter detection circuit including chrominance values. See M.P.E.P. § 2141(II)(A) (determining the scope and content of Buchar) and § 2141(II)(B), 2111 (ascertaining the differences between the claim 1 and Buchar).

Feng discloses a method for color registration (fig. 4) that teaches wherein image data (e.g., fig. 1) comprises chrominance values (fig. 4, items 82, 84; fig. 2, item 28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the image registration parameter detection circuit of Buchar to include chrominance values from the color registration method as taught by Feng “to capture luminance and chrominance separately and independently, so that the captured image is free from color fringing and blurring associated with mis-registration. . .” Feng at 4:10-22. See M.P.E.P. § 2141(II)(C) and § 2143(G)(1) (showing a finding that there is some motivation in Feng to modify Buchar).

Feng “relates to improvements in document scanning for photocopiers, scanners, and other image reproducing systems, and specifically to a method of refining color registration within the final image.” Feng at 1:6-10. See M.P.E.P. § 2143(G)(2) (showing that there is a reasonable expectation of success).

In addition under the same rationale (§ 2143(G)), it also would have been obvious to one of ordinary skill in the art at the time the invention was made for the image registration parameter detection circuit of Buchar to include chrominance values because of advantages of

¹ See § 112, first paragraph rejection above.

using a YCbCr colorspace (that creates chrominance values) over RGB colorspace (that creates gray values), including the fact YCbCr has less correlation redundancy and because the chrominance components can then be subsampled by a factor of 2 or 4 to further compress the image.

Regarding **Claim 25**, Buchar in view of Feng discloses wherein the registration parameter detection circuit determines the chrominance level deviation for the registration channel as the difference between the maximum chrominance level value within the set of chrominance level value corresponding to the registration channel and the minimum chrominance level value within the set of chrominance level values corresponding to the registration channel (“gray level deviation is the difference between the maximum and minimum gray level received in a given for the scan” at ¶ 0035).

Regarding **Claim 26**, Buchar in view of Feng discloses a document handler and imaging system of Claim 24, wherein the registration parameter detection circuit determines a registration parameter for a black average register (BAR) as a function of the average chrominance level of the registration channel (“BAR” at ¶¶ 0024, 0037, 0039; Claim 4), a step change register (SCR) as a function of the chrominance level deviation of the registration channel (“SCR” at ¶¶ 0024, 0037, 0039; Claim 4), and white average register (WAR) as a function of as both the average chrominance level and the chrominance level deviation of the registration channel (“WAR” at ¶¶ 0024, 0037, 0039; Claim 4)

Regarding **Claim 27**, Buchar in view of Feng discloses document handler and imaging system of Claim 26, wherein the registration parameter detection circuit determines the registration parameter for the black average register (BAR) according to:

$$Cb_{avg} \text{ if } Cb_{avg} \geq t_1$$

$$BAR_c =$$

$$t_1 \text{ if } Cb_{avg} < t_1$$

(equation 3 at ¶ 0037) the registration parameter for the a step change register (SCR) according to

$$\Delta_{cb} \text{ if } \Delta_{cb} \geq t_2$$

$$SCR_c =$$

$$t_2 \text{ if } \Delta_{Cb} \geq t_2$$

(equation 4 at ¶ 0037) and the registration parameter for white average register (WAR) according to

$$Cb_{avg} + \Delta_{Cb} \text{ if } Cb_{avg} + \Delta_{Cb} \geq t_3$$

WARc =

$$t_3 \text{ if } Cb_{avg} + \Delta_{Cb} \geq t_3$$

(equation 5 at ¶ 0037) wherein t_1 is the minimum backing chrominance threshold level, t_2 is the minimum step change level and t_3 is the minimum document chrominance threshold level required for detection processing (¶ 0038).

Regarding **Claim 28**, while Buchar discloses in a document handler and imaging system configured to sequentially move different document sheets past an imaging station by a document feeding system to be illuminated by a document illumination source and imaged by a document imager, a method of automatically detecting registration parameters for a selected backing surface ("document handler and imaging system. . .backing surface" at ¶ 0012), comprising:

obtaining image data ("image data" at ¶ 0020) via the document imager ("document imager" at ¶ 0012) comprising a representative sample of the backing surface ("backing surface" at ¶¶ 0013-0014), the backing surface image data including gray level values ("gray level values" at ¶ 0013) in multiple channels ("at least two color sensitive channels" at ¶ 0012) for selected pixel locations along a scanline (¶ 0013);

determining an average gray level values for each of the multiple channels ("automatically determining an average gray level..." at ¶ 0012);

selecting a registration channel (fig. 4, item 110) from the multiple channels based on the average gray level values ("selecting a registration channel based on the average gray level for each of the at least two sensitive channels" at ¶ 0012);

determining a gray level deviation for the registration channel ("determining a gray level deviation for the registration channel" at ¶ 0012); and

determining scanned image alignment registration parameters (fig. 4, item 114; “determining registration parameters based on the average gray level. . .” at ¶ 0012) [for aligning a scanned image to the backing surface]² based on the average gray level value of the registration channel, Buchar does not disclose the image registration parameter detection circuit including chrominance values. See M.P.E.P. § 2141(II)(A) (determining the scope and content of Buchar) and § 2141(II)(B), 2111 (ascertaining the differences between the claim 1 and Buchar).

Feng discloses a method for color registration (fig. 4) that teaches wherein image data (e.g., fig. 1) comprises chrominance values (fig. 4, items 82, 84; fig. 2, item 28).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for the image registration parameter detection circuit of Buchar to include chrominance values from the color registration method as taught by Feng “to capture luminance and chrominance separately and independently, so that the captured image is free from color fringing and blurring associated with mis-registration. . .” Feng at 4:10-22. See M.P.E.P. § 2141(II)(C) and § 2143(G)(1) (showing a finding that there is some motivation in Feng to modify Buchar).

Feng “relates to improvements in document scanning for photocopiers, scanners, and other image reproducing systems, and specifically to a method of refining color registration within the final image.” Feng at 1:6-10. See M.P.E.P. § 2143(G)(2) (showing that there is a reasonable expectation of success)

Regarding **Claim 29**, Buchar in view of Feng discloses further comprising providing a backing surface having a color being one of yellow, greenish-yellow, green and black (¶ 0036; Claim 6)

Regarding **Claim 30**, Buchar in view of Feng discloses wherein the backing surface comprises a ski, the ski being adapted to be removably attached to a document handler (¶ 0027; Claim 7).

Regarding **claim 31**, Buchar in view of Feng discloses wherein selecting said registration channel further comprises;

² See § 112, first paragraph rejection above.

determining a chrominance level deviation for the registration channel (step (d) at ¶ 0013); and

determining registration parameters based on the average chrominance level value and the chrominance level deviation of the registration channel (step (c) at ¶ 0013).

Regarding **claim 32**, Claim 25 recites identical features as in Claim 32. Thus, references/arguments equivalent to those presented above for Claim 25 are equally applicable to Claim 32.

Regarding **Claim 33**, Claim 26 recites identical features as in Claim 33. Thus, references/arguments equivalent to those presented above for Claim 26 are equally applicable to Claim 33.

Regarding **Claim 37**, Buchar in view of Feng discloses wherein the determining and selecting steps are performed using a processor (fig. 1; “digital scanning system” at ¶ 0022).

Conclusion

[6] Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

[7] Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID P. RASHID whose telephone number is (571)270-1578 and fax number (571)270-2578. The examiner can normally be reached Monday - Friday 7:30 - 17:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/David P. Rashid/
Examiner, Art Unit 2624

/Bhavesh M Mehta/
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